



# SOLVAY MINERALS

March 7, 2002

Bernie Dailey  
WDEQ-Air Quality  
122 W. 25<sup>th</sup> Street  
Cheyenne, WY 82002

Re: Calciner (AQD #17) Fuel Options and Permitting Requirements

Dear Bernie:

Solvay Minerals is evaluating the fuel options for our natural gas-fired calciners. This investigation is a direct result of uncertainties and price swings of natural gas, which was experienced in 2001, and is expected to continue to plague the mining industry in the future. At this time, we are considering converting Calciners A and B back to coal. It is attractive to convert A and B, since part of the coal infrastructure for these units is still in place. The purpose of this letter is to confirm the permitting requirements for converting these calciners back to coal-firing. We have focused on NO<sub>x</sub> emissions, since that will be the main pollutant in question. However, we do understand that other pollutants must be addressed as well.

Calciners A and B (AQD #17 common stack) were originally permitted under CT-234 issued July 12, 1979. The calciners were fueled with a stoker coal system. The permit set the NO<sub>x</sub> emission limit at 300 pounds per hour (pph) for the stack which exhausts both Calciner A and B gases. Permit MD-229 was issued June 13, 1995, allowing the conversion of the calciners to natural gas-firing. The NO<sub>x</sub> emission limit was set at 20 pph in that permit, based on 0.05 lb/MMBtu from the two 200 MMBtu/hr low NO<sub>x</sub> burners. The conversion to natural gas-firing resulted in an "actual" NO<sub>x</sub> emission reduction of 596 tons per year (TPY). This emission reduction was used to offset the 268-ton NO<sub>x</sub> emission increase associated with the expansion project permitted under CT-1347, issued February 6, 1998. Also included in CT-1347 was an increase in NO<sub>x</sub> emissions of Calciners A and B to 30 pph. This was based on increasing the firing rate to 250 MMBtu/hr per calciner and an amended emission rate of 0.06 lb/MMBtu.

In reviewing Wyoming Department of Environmental Quality (WDEQ) regulations, Solvay understands the permit requirements as follows:

- Since Wyoming has primacy over the air quality program, Wyoming Air Quality Standards and Regulations (WAQS&R) take precedence over the federal EPA program. However, Wyoming does defer to some federal regulations, such as the guideline for determining Best Available Control Technology (BACT).
- There are no New Source Performance Standards (which set specific emission rates for certain source categories) associated with trona calciners.



- The trigger for Prevention of Significant Deterioration (PSD) permitting is 40 tpy of NO<sub>x</sub>. However, in the state of Wyoming, any modification to a source, regardless of being a PSD permitting action or not, must employ BACT, per WAQS&R Section 2 (c) (v).
- BACT is a process, as described in Chapter 2 of EPA's New Source Review (NSR) Manual, dated January 23, 1990, not a set emission rate as established in New Source Performance Standards. The steps outlined in this document are:
  - Step 1 – Identify all Control Technologies
  - Step 2 – Eliminate Technically Infeasible Options
  - Step 3 – Rank Remaining Control Technologies by Control Effectiveness
  - Step 4 – Evaluate Most Effective Controls and Document Results
  - Step 5 – Select BACT

EPA summarizes the process as: "In brief, the top-down [BACT] process provides that all available control technologies be ranked in descending order of control effectiveness. The PSD applicant first examines the most stringent—or "top"-alternative. That alternative is established as BACT unless the applicant demonstrates, and the permitting authority in its informed judgment agrees, that technical considerations, or energy, environmental, or economic impacts justify a conclusion that the most stringent technology is not "achievable" in that case. If the most stringent technology is eliminated in this fashion, then the next most stringent alternative is considered, and so on."

- There are no NO<sub>x</sub> emission offsets available, since the reduction in NO<sub>x</sub> emissions from the 1995 conversion from coal to gas occurred more than five years ago, and the offset was used in the 1998 expansion project, per WAQS&R Chapter 6 Section 4 (a) (xii) (B) and (C).
- Air dispersion modeling would be required to confirm compliance with the Wyoming Ambient Air Quality Standards, and the Class II PSD increment if PSD is triggered.
- The Federal Land Managers (U.S. Forest Service, etc.) may require an evaluation of Air Quality Related Values, such as visibility.

In summary, Solvay understands there are no New Source Performance Standards for trona calciners, but that BACT must be installed, regardless of whether the permit triggers PSD requirements. Dispersion modeling would be required to show compliance with applicable ambient standards, increment, and Air Quality Related Values.

Solvay reviewed the EPA BACT Clearinghouse for available technologies to control NO<sub>x</sub> emissions from coal-fired sources. As required, technologies for the source category (Trona/Soda Ash Industry), as well as for similar source categories (Portland Cement, Lime Manufacturing, Diatomite, and Perlite), were explored. No stoker coal systems were identified. However, since some of the infrastructure for the stoker coal system is still intact, we would like to reinstall a stoker system on Calciners A and B.

It is important for us to understand the permitting requirements, especially BACT, before continuing to investigate converting Calciners A and B back to coal-firing. Your written response to this request is needed to facilitate the engineering and capital planning requirements at the corporate Solvay level. Many thanks for your help in this matter.

If you have any questions, please contact me at (307) 872-6516. Also, we would be happy to meet with you in your Cheyenne office to discuss this request.

Sincerely,  
SOLVAY MINERALS, INC.

Dolly A. Potter  
Environmental Services Supervisor

cc: Tony Hoyt